4-1 Preliminary Data

Preliminary Data is the essential information fundamental to the design of structures. Preliminary Data includes information about existing site conditions, planned geometrics, scope of structure work, design and construction constraints, and other factors on which structure designs are based.

This section highlights the Bridge Site Data Submittal Package and other checklists available for consultants use to compile pertinent preliminary information. Consultants may utilize their own forms in addition to the forms and checklists described.

As the minimum preliminary information for projects that involve state highway structures, consultants must prepare a Bridge Site Data Submittal (BSDS) package for each structure in the project. Ordinarily, the roadway designers should prepare BSDS package(s) for the structure designers' use and consultant contracts should account for this task accordingly.

Bridge Site Data Submittal Package

The BSDS package consists of completed BSDS forms and associated attachments. The BSDS forms are essentially checklists of pertinent layout, environmental, site information and other constraints needed to design structures. The checklist requires the attachment of various site drawings, layouts, and other information to make the BSDS package complete. An example of a BSDS form is shown in Attachment 4-1.1.

The BSDS forms can be downloaded through the OSFP website. There are different forms for bridges, soundwalls, and retaining walls. When a project involves one or more of these features, the corresponding forms shall be used. One BSDS package is required for each structure on the project. Before preparing BSDS packages, the most current forms should be downloaded.

The BSDS shall be prepared in accordance with the instructions on the forms. Though the forms were developed for Caltrans in-house use, consultants must use the forms in a similar fashion. Generally, references in the forms to the District and Structures correspond to the Roadway Design and Structure Design Consultants, respectively. The forms should be filled in electronically to utilize the standardized entries via dropdown menus many fields contain.

On the first page of the BSDS forms, in the table that shows the information/documents provided, instead of writing the name of the file in the "File Name" column, the consultant may write "Provided to Structure Designer" or "Not Provided to Structure Designer".

BSDS packages should be completed with sufficient lead time to allow for Caltrans review and approval before the structure designer develops General Plans for the structures.

Once prepared, the BSDS packages must be submitted to the District and the OSFP Liaison Engineer for review. Unless otherwise requested, only the following attachments need to be submitted with the BSDS checklist for review:

- Strip Map
- Aerial photo of site
- Bridge Site Plan
- Profile Grade
- Superelevations
- Typical Sections
- Detour or stage construction plans
- Utility map & Utility information sheets
- Lane Closure Charts

The District has the primary approval responsibility for BSDS checklists and attachments. The Liaison Engineer will provide support as necessary.

Approved BDSD packages must be submitted to the Liaison Engineer with the Type Selection Report.

Other Preliminary Information Checklists

For consultants' use and reference, following are four other checklists used by Caltrans to help scope the structure work. These checklists are not required submittals but may serve to help identify additional design parameters and other useful project related data. The most current checklists are available through the OSFP web site.

- Bridge or Structure Field Site Investigation Checklist
- Railroad Separation Field Site Investigation Checklist
- Bridge or Structure Hydraulic Site Survey Checklist
- Foundation Plan Preparation Checklist

Deliverables

Item	To District	To OSFP
BSDS Checklists and Attachments[1]	2	1
Approved BSDS Checklists and Attachments[2]	0	1

[1] Submit sufficiently in advance for review and approval prior to submitting Type Selection Packages.
[2] Submitted with Type Selection Package.

Attachments

4-1.1 Bridge Site Data Submittal
4-1.2 Bridge or Structure Field Site Investigation Checklist
4-1.3 Railroad Separation Field Site Investigation Checklist
4-1.4 Bridge or Structure Hydraulic Site Survey Checklist
4-1.5 Foundation Plan Preparation Checklist

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 1 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service Center, Office of Structures Design

Preliminary Investigations
Revised 04/01

BRIDGE SITE DATA SUBMITTAL

Always use the current Web version! This Document can be updated weekly!

To:	From:		
Division of Structures Design, Sacramento (HQ) **(Please Submit this form & accompanying documents electronically)**	PROJECT MANAGER (SR):		PHONE NO.:
	DESIGN BRANCH CHIEF (SR):		PHONE NO.:
	PROJECT DESIGNER (TE):		PHONE NO.:
SUBJECT: BRIDGE SITE DATA SUBMITTAL Mail drop at: http://sonramp/hq/ES/StructuresDesign/DesignAndTechnicalServices/PI/piupload.htm	CHARGE	EA:	DISTRICT: DATE:

District shall establish a local project directory containing the relevant files listed below on a per bridge basis (unless indicated otherwise). Please provide the name of the file in the space provided below. A code "(S)" after an item indicates that Structures will provide the information. A code "(B)" after an item indicates that District and Structures *both* need to provide the information. All else, and code "(D)" indicates that District will provide the information. The sole purpose of this submittal is to target the needs of the Structures Designer, the Structures Specifications Engineer, the Preliminary Investigations Unit, and Structures Hydraulics.

Note: This submittal will be incomplete if District does not provide the corresponding information listed below. Please click on shaded form fields to make entries or to select menu choices where applicable. (shortcut: press "tab" on keyboard to advance to next form field and tab+shift to go back.)

Structure:
- ☐ Bridge (Includes Box Culverts)
- ☐ Bridge & walls
- ☐ Wall(s) only (all types)
- ☐ Soil Slab / Bost Section
- ☐ *Other* e.g. Barrier Rail Replacement/Upgrade, Deck rehab/Overlay, Buildings, Abandonment's, etc. (No Foundation Plan Required or survey info - Minor Alterations to Structure)

Explain: Always include a Cover sheet with a brief scope and history [u1]

User: Read all yellow Highlighted Comment box for suggestions [z2]

http://sonramp/hq/ES/StructuresDesign/DesignAndTechnicalServices/PI/piupload.htm **Always Use PI Web Mail drop**

	Information Provided	Code	File name[u3]
1.	PSR/PR (Bullet Synopsis only & per project)	(D)	
2.	Include all A.P.S.'s	(D)	
3.	E.I.R. (per project) Synopsis only ☐ Not Applicable	(D)	
4.	Strip Map (per project)	(D)	
5.	2-D Mapping file (per project) (photogrammetric-separated from strip map)	(D)	
6.	Alignment traverse sheet	(D)	[u4]
7.	Aerial photo of site (1: 500 scale is acceptable)	(S)	
8.	Bridge site plan (real world coordinates)	(D)	
9.	Profile Grade	(D)	
10.	Superelevation	(D)	
11.	Typical Section	(D)	
12.	Detour or stage construction plans[z5] ☐ Not Applicable	(D)	
13.	Highway Layouts	(B)	[u6]
14.	Utility map & Utility information sheets (DS-P58)[z7]	(D)	
15.	Lane closure charts[z8] ☐ Not Applicable	(D)	
16.	District milestone schedule (include all primary District and District Survey contacts and functional unit contacts with their responsibilities and	(D)	

Bridge Site Submittal.doc
REV 04/01

Page 1 of 14
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 2 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

	all telephone numbers)		
17.	Archived District CAiCE files *(MOST CURRENT)*[z9]	(D)	[u10]
18.	Structures' P.I. Survey Information sheet	(D)	[u11]
19.	Digital photos of the site if available	(D)	
20.	**Always include a cover Memo with a brief scope and history**	(D)	[z12]

PLEASE COMPLETE ALL SECTIONS AND SUBSECTIONS IN ITS ENTIRETY.
Please note that project will be delayed if sections are left blank.

I. GENERAL INFORMATION

A. Location:[u13]

Bridge Name & Number: [u14]

District: | **County:** | **Route:** | **Post km:** [tv15]

This structure is located in the city of _____.
_____ is the nearest city or town located _____ km down station of the structure.
_____ is the nearest city or town located _____ km up station of the structure.

B. Project Description:[u16]

☐ New Structure.
☐ Replacement: [u17]
☐ Modification:
- ☐ Widening ***(Looking up station)***:
  Width: _____[u18] m left of centerline.
  _____[u19] m right of centerline.
- ☐ Lengthening
  _____ m beyond BB. Final Stationing: _____. Explain: _____[z20]
  _____ m beyond EB. Final Stationing: _____. Explain: _____[z21]
- ☐ Scour mitigation:
  Explain: _____[z22].
- ☐ Rail replacement:
  Current railing type: _____.
  Replacement type: _____.
  Length: _____[z23] m on [z24] side(s). ***(Looking up station)***
- ☐ Earthquake retrofit:
  Explain: _____[z25].
- ☐ Permit Load Strengthening:
  Explain: _____[z26].
- ☐ Abandonment
  Explain:
- ☐ Other:
  Explain:

☐ Retaining wall: ☐ Not Applicable
Location: _____[z27].

☐ Soundwall: ☐ Not Applicable
- ☐ Wall is on structure.
- ☐ Wall is off structure.
- ☐ Other:

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 3 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

Explain: _____[z28].

☐ Related structures. (Culverts, Buildings, Slab Seals / Boat Section etc.):
Explain: _____[z29].

☐ Other:[z30]
Explain: _____.

C. *Sign structures* ☐ None.

☐ On structure, ES _[z31]*

☐ Off structure, ES _[z32].*

☐ Both on and off structure, ES _[z33].*

*Located: _____[z34] as shown on drawing _____.

Sign & post type: _____.

Other, explain: _____[z35].

D. *Weather*

Temperature[z36]

Lowest anticipated temperature at site: _____[z37] °F [z38].

Highest anticipated temperature at site: _____[z39] °F [z40].

Rainfall ☐ Not Applicable[z41]

Rainfall intensity at site for 25 yr. return period and 5-min duration:
_____ mm/hr *(For deck drainage design)*.

E. *Pumping plants* [z42] ☐ Not required.

☐ Required, information will be provided by _____ on _____.

F. *Historical structures (typically 75 yr. & older)*

State _[z43] designated bridge as a historical structure.

State _[z44] designated adjacent structures as historical.

G. *Future widening* ☐ *None*

☐ Anticipated in _____[z45] years.

Plan view & typical section of ultimate structure shown on the following drawings: _____[z46].

H. *Future Lengthening* ☐ *None*

☐ Anticipated in _____[z47] years.

Plan view & typical section of ultimate structure shown on the following drawings: _____[z48].

I. *Is there Federal funding in this project?*

☐ Yes.

☐ No, expected _____[z49].

☐ No, none expected.

J. *Type K temporary rail on structure*

Will be included in _[z50] ***estimate.***

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 4 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

II. Design & Construction

A. *Access* [u51]

☐ Access limitations: ☐ No Restrictions
Due to : [z52]
Explain: [z53]

☐ Legal access to site is available for ES for site review & foundation drilling
from [z54] [z55] to [z56] [u57].

☐ Legal access not available. ES to contact [z58] at [z59] before fieldwork.

☐ Access to the site is restricted by environmental considerations.
Contact [z60] at [z61] before any work is done at the site.

☐ Time constraints:
Explain: [z62]

B. *Permits for access to site for preliminary Foundation work*

☐ Have been obtained and expires on _____.

☐ Permits have not yet been obtained but should be provided by [z63].

☐ Not needed. Explain: _____.

C. *Staging area:*

☐ Has not been identified for construction (contractor).
Explain: [z64].

☐ Has been identified for construction (contractor). Preliminary information on the location:
[z65].

D. *Structure clearance calculations.* (R)

☐ Not required. Explain:

☐ See below:

VERTICAL CLEARANCE CALCULATIONS AT:

Eg.	5.67 m	right of	"A"	Line at Station 2091+12.9	permanent [u66]
Use supplemental form on web site for additional locations	_____ m	[z67]		Line at Station	_____ [z68]
	_____ m	[z69]		Line at Station	_____ [z71]
	_____ m	[z72]		Line at Station	_____
	_____ m	[z73]		Line at Station	_____ [z74]

UPPER ROADWAY
Station:
Distance [z75] of Profile Grade: _____ m [z76]
Cross Slope: _____ %
Profile Grade Elevation: _____m
Corrections for Cross Slope: _____m

Upper Roadway Elevation = [z77] m

LOWER ROADWAY
Station:

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 5 of 14)

Distance [x78] of Profile Grade: _____ m

Cross Slope:

Traveled Way: _____ %

Shoulder: _____ %

Profile Grade Elevation: _____ m

Corrections for Cross Slope: _____ m

Lower Roadway Elevation = _____ m [x79]

Difference between roadway elevations: _____ m

Less required minimum clearance: - _____ m

(Check Bridge Design Aids 10-4 to 10-5
or Highway Design Manual 309.2)

Available for structure depth: _____ m

FALSEWORK CLEARANCE

Difference between roadway elevations: _____ m

a) Less minimum falsework clearance: - _____ m

(Check BDA 10-8 to 10-9 or HDM)

b) Less falsework depth: - _____ m

(Check BDA 10-8 & 10-9 or HDM Table 204.6)

(The sum of a + b) Total falsework clearance required: = _____ m

(Check BDA 10-6 or HDM 200-28 to 200-29)

Available for structure depth: _____ m

Minimum structure depth required: _____ m

(Check BDA 10-25 to 10-29 or HDM 204.6)

E. Construction window

- ☐ No known constraints on construction.
- ☐ A limited construction window exists:
  - _____ [x80]
- ☐ Environmental concerns (list periods and concerns):
  - _____ [x81]
- ☐ Fish & Game restrictions (list period & restrictions):
  - _____ [x82]
- ☐ Traffic (list restrictions):
  - _____ [x83]
- ☐ Fish migration (list period):
  - _____ [x84]
- ☐ Corps of Engineers (list restrictions & period):
  - _____ [x85]
- ☐ Other (specify cause & period of restriction):
  - _____ [x86]

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 6 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

F. *Falsework* [z87]

- ☐ No restriction. No traffic. ☐ Not Applicable
- ☐ Falsework not allowed over traffic.
- ☐ Stage construction required as detailed under "Additional Data" and attached plans.
- ☐ Build above Final Elevation, lower to Final Profile (B) Explain:
- ☐ Falsework openings (S):
  - ☐ Must have Type K temporary railings adjacent to traffic.
  - ☐ Must have Crash Cushions adjacent to end of railings.
  - ☐ Guard posts are required (if work is within 7.62 m (25 ft) of centerline of RR track).
  - ☐ Crash walls required for permanent structural elements within 7.62 m (25 ft) of centerline of RR track.
  - ☐ Profile Grades are set to provide minimum falsework depths per Highway Design Manual:
    - ☐ Provide ____ opening(s) in falsework: _____ [z88] m wide by _____ [z89] m high. Located: _____.
    - ☐ Covered pedestrian passageways to be _____ [z90] m wide by _____ [z91] m high. Located _____.
- ☐ Falsework lighting required.
- ☐ Traffic is not to be interrupted between the hours of _____ to _____ on weekdays and _____ to _____ on weekdays and not at all on Saturdays, Sundays, and Holidays. Exception shall be made for erection of prefabricated girders, erection or removal of falsework or removal of portions of existing structure or other: _____ [z92].
- ☐ Lane closure charts provided.
- ☐ Future maintenance painting could be performed without excessive interruptions or hazards to traffic.

G. *Railroad traffic will be carried* ☐ Not Applicable

- ☐ On new alignment. ES's involvement – e.g. structural walls Explain: _____.
- ☐ On shoofly. ES's involvement – e.g. structural walls Explain: _____.
- ☐ Through bridge construction area.

H. *Waterways* ☐ None; structure is not over water.

- ☐ No restriction on placing Falsework or Sheet piles in existing waterway.
- ☐ Falsework or Sheet piles cannot be present in waterway or environmentally sensitive area between the following defined dates: from _____ to _____. [z95]

I. *Detour*

- ☐ None required.
- ☐ Traffic to use existing facilities.
- ☐ Traffic can be detoured.
- ☐ Required. Traffic to _____.
- ☐ Stage construction required. See "Additional Data". (Include proposed traffic handling and Sequence of Operations).

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 7 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

☐ ES to review and comment.

J. Storage facilities

☐ No restrictions.

☐ Restricted:
Explain:_____

☐ On-site storage of fabricated girders is not available due to physical restrictions and hazards to traffic in the immediate vicinity of the bridge construction site.

☐ Fabrication of girders or storage of material should not be allowed within _____ m of edge of shoulder of freeway or _____ m of other roads.

K. Coordination [6/94]

☐ Copies of pertinent correspondence from authorities **are** attached.

☐ Copies of pertinent correspondence from authorities **are not** attached.

The following entities have an interest in this structure: (name/phone):

State/Federal: ☐ None.

☐ FHWA, (_____ / _____)
☐ Corps of Engineers, (_____ / _____)
☐ Coast Guard; contact, (_____ / _____)
☐ Fish & Game; contact, (_____ / _____)
☐ State Board of Reclamation, (_____ / _____)
☐ Department of Water Resources, (_____ / _____)
☐ *Other:* (specify / name / phone), (_____ / _____ / _____)

Local/Private: ☐ None.

☐ Local Agency, (agency / name / phone), (_____ / _____ / _____)
☐ Railroad, (_____ / _____) Specify RR: _____
☐ Coastal Commission; contact, (_____ / _____)
☐ BCDC (Bay Conservation and Development); Contact, (_____ / _____)
☐ *Other:* (specify / name / phone), (_____ / _____ / _____)

Water Related: ☐ None.

☐ Water Agency, (agency / name / phone), (_____ / _____ / _____)
☐ Irrigation District, (district / name / phone), (_____ / _____ / _____)
☐ Drainage District, (agency / name / phone), (_____ / _____ / _____)
☐ *Other:* (specify / name / phone), (_____ / _____ / _____)

District Requirements:

1.	District shall notify ES before ES proceeds with structure design.
2.	District shall request Department of Fish and Game approval upon receiving notification of the design alternative chosen by ES (when applicable)
3.	District shall submit Soundwall General Plan to local authorities for approval:
	Local Authority:

Bridge Site Submittal.doc
REV 04/01

Page 7 of 16
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 8 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

Name:	
Phone:	

III. Structure Information

A. Alignment and Grade attachments

- ☐ None. ☐ **Already included –See 1st page of this submittal** Explain:
- ☐ Alignment traverse sheet including, Coordinates, Station values, Curve and tangent information.
- ☐ Lower roadway toe of slope grid grades.
- ☐ Fixed grade lines
  Specify: _____.
- ☐ Adjustable grade lines
  Specify: _____.
- ☐ Edge of deck grades (AC and PCC).
- ☐ Super-elevation Diagram.
- ☐ List of Profile Grades.
- ☐ ES to expedite General Plan to District for final grade determination or for _____.
- ☐ Survey Lines and/or Construction Centerline to be staked upon request.
- ☐ Staking already done. Explain:
- ☐ Other
  Specify: _____.

B. Structure Approaches ☐ None.

- ☐ Needed for new construction (ES will determine the need).
- ☐ Needed for rehabilitation, full width or specific lanes (District Pavement Rehabilitation Review Team).
- ☐ PCC pavement will be used on road approaches.
- ☐ AC pavement will be used on road approaches.
- ☐ Full slope paving on approach fills recommended. PS&E by:
  - ☐ ES
  - ☐ District
  - ☐ Other: _____.

C. Bank Protection ☐ Not Applicable

- ☐ District anticipates providing bank protection.
  Specify type & location: _____.
- ☐ Other: _____.

D. Channel Excavation ☐ Not Applicable

- ☐ District anticipates providing a channel for the conveyance of water.
  Provide details (side slope, typical section, Elevations, etc.)
  See drawing(s): _____.
- ☐ Temporary Railing required. Explain: _____.

E. Bridge Rail / Guard Rail ☐ Not applicable.

- ☐ District recommends Type _____ as shown on enclosed drawings. Explain: _____.

Bridge Site Submittal.doc
REV 04/01

Page 8 of 16
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 9 of 14)

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

- ☐ Sound wall on Barrier Type _____ as shown on enclosed drawings. Explain: _____.
- ☐ Structure located on super-elevation transition, possibly affecting rail profile.(ES to comment).
- ☐ Locations of metal beam guard railing shown on site data.(ES to provide suitable connections at ends of bridge rail. Metal beam guard railing to be included in District PS&E).
- ☐ Median barrier railing on structure. Type _____ is recommended.
- ☐ Glare screen required.
- ☐ Additional data provided. For additional information see drawing _____ [c95].
- ☐ District recommends architectural treatment(s) as shown on drawings: _____ [c96].

F. Sidewalk on structure

- ☐ None required.
- ☐ Sidewalk(s) required:
  - ☐ Sidewalk type: _____. Width: _____ m.
  - ☐ Drawing with details provided. See drawing: _____.
  - ☐ Temporary sidewalks are required through construction zone.
  - ☐ Sidewalk(s) are required to connect to existing sidewalk system.
- ☐ Subdivision activities in the immediate area indicates that construction of a connecting system of sidewalks is imminent.
- ☐ Overcrossing screening required on _[c97]. (PS&E by ES)
  Specify type of screen required: _____.
- ☐ Sidewalk and railing as shown (specify drawing: _____) conforms to requirements of local authorities and/or sight distance requirements.
- ☐ A school / schools exist(s) within 1.61 km of structure.
  - ☐ Children _[c98] be using the structure routinely.
  - ☐ Shuttle service around structure required during construction.
- ☐ District shall provide details of non-standard sidewalk configuration.
- ☐ Raised median on structure. See _____ [c99]

G. Clearances

Clearances _[c100] in accordance with ES Advance Planning Study dated _____.
(Designer has a non-standard job with special requirements)

_____ [c101] m minimum horizontal clearance to column or abutment from right edge of pavement.

_____ [c102] m from left edge of pavement with respect to direction of traffic.

Vertical clearance of _____ [c103] m required over initial and ultimate traveled ways, _____ m over shoulders (includes) _____ m additional clearance required under Pedestrian or Cyclist Overcrossings.

- ☐ Vertical clearance controls per attached calculations. Structure depths used in established grades are listed below in "Additional Data".
- ☐ See Hydraulic Data for estimated peak High Water elevations.
- ☐ Match existing.
- ☐ Columns or pier permitted in the median.
- ☐ Railroad off-track Maintenance Road and/or future track requirements shown on Site Plan.

H. Corrosion Classification [c104]

- ☐ Site is not considered corrosive.
- ☐ Site is considered corrosive. Corrosion test sheets are attached.
- ☐ Site is within 400 meters of ocean or tidal water.

Bridge Site Submittal.doc
REV 04/01

Page 9 of 16
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 10 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

☐ Chloride concentration is _____ PPM.
☐ Data not available at this time. Will be furnished by _____ on _____.

I. *Hazardous Material at Site* ☐ ***NOT APPLICABLE***[z105]

☐ Site is not considered hazardous.
☐ Excavated material can be used in embankment fills.
☐ Hazardous material at site is type _____ classification.
☐ Encountered groundwater must be transported off site or filtered.
Explain: _____[z106]
☐ Excavated material must have special handling.
Explain: _____[z107]
☐ Data not available at this time. Will be furnished by _____ on _____.

J. *Deck Protection/Deck Rehabilitation (B)* ☐ ***NOT APPLICABLE***

The structure _____[z108] be exposed to de-icing salts or chemicals.
Specify which: _____
☐ The structure's riding surface will be exposed to chain use.
☐ The Structures deck will be rehabilitated.
The rehab strategy is: (Based on concurrence from Structure Maintenance)

K. *Design speed* ☐ ***NOT APPLICABLE***

Design speeds shown on plans.
See drawing _____.
Design speeds are: _____ (km/h).
(Used in calculating centrifugal forces on curves BDS 3.10.1)

L. *Factors affecting sight distance* ☐ None.

☐ Driveways/Access roads located near either end of bridge.
See drawing: _____
☐ Other, see "Additional Data".

M. *Disposal of Old Bridge* ☐ ***Not Applicable***

Traffic can be _____[z109] for bridge removal.
☐ No restrictions.
☐ Removal can be accomplished after construction **(PS&E by ES).**
☐ Existing structure to remain in place for _____ traffic.
☐ Disposition of salvageable material to be handled by ES. The following item(s) should be salvaged:
_____
☐ Protective cover over lower roadway is needed **(PS&E by ES).**

N. *Drainage* ☐ ***Not Applicable***

☐ District will provide shoulder drains on approaches near high end(s) of structure to prevent drainage crossing end(s) of structure.
☐ Accumulated surface water to be carried on structure across freeway. Special sealing at structure ends and seat type abutments to be provided by ES. **(This may be expensive. Should be discussed by District and Structure Designer).**

Bridge Site Submittal.doc
REV 04/01

Page 10 of 16
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 11 of 14)

- ☐ Water from bridge deck can be removed by drop through (day light) deck drains or scuppers.
- ☐ Other: _____ [x110]

O. *Crash Cushions on Structure*

- ☐ Not needed.
  Explain:
- ☐ Type _____ and location _____.
- ☐ Details shown on drawing: _____.
- ☐ Details will be provided by _____.

P. *Loading*

- ☐ No special construction loading.
- ☐ Structure is on "**EXTRALEGAL LOAD NETWORK**" Route _____ ***(PI will answer this)***
  (*Revised as of 10/00 – See HQ Traffic Ops network maps*).
- ☐ Structure is on **Strategic Highway Corridor Network** (**STRAHNET**) ***(PI will answer this)***
- ☐ Structure is on state wide list of **Life Line Routes** ***(PI will answer this)***
- ☐ The Local Transportation Authority considers this a primary emergency or evacuation route.
- ☐ _____ Structure(s) to carry construction overloads.
- ☐ Structure will carry railway.
  Specify: _____.
- ☐ Structure will carry special loads.
  Specify: _____.

Q. *Obstructions*

- ☐ None existing other than those stated in utility requirements.
- ☐ Potential obstructions:
  •
- ☐ Traffic.
- ☐ Existing bridge.
- ☐ Water flow.
- ☐ Overhead wires.
- ☐ Buried utilities.
- ☐ Other: _____.

For marked item(s) in this section (Q), please explain the obstruction in "Additional Data" And include drawing number and depths where applicable.

- ☐ Listed below are those obstructions that are to remain in place or will be moved to locations where they could interfere with design or construction:
  • _____

R. *Retaining Walls* [x111] ***by District (Standard, Non Standard, Combination)***

- ☐ None needed.
  Explain:
- ☐ Needed, PS&E by: _[x112]_
  ☐ Type: _[x113]_ Explain: _____
- ☐ Sound Wall on Retaining Wall. ☐ Sound Wall on Structure.
- ☐ Rail on Retaining Wall. Type:
- ☐ Shown on District site plan. See drawing _____.

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 12 of 14)

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

☐ Special design required. *(Send site data to ES for evaluation)*
☐ Special aesthetic/architectural treatment required
See drawing: _____.
☐ Foundation recommendations provided.
See attachment _____.
☐ Drainage requirements:
☐ All existing drainage in conflict with the retaining walls will be removed or relocated by District ***during*** construction.
☐ All existing drainage in conflict with the retaining walls will be removed or relocated by District ***prior to*** construction.
☐ Exception to above / existing drainage to remain:
• _____.
☐ New drainage will conflict with the retaining walls.
☐ All existing drainage in conflict with the retaining walls are as follows:
_____.
☐ Other Details:

S. Structure type recommendations

☐ None, ES to recommend type.
Is an aesthetic consideration to be consistent with neighboring structures ? ☐ Yes ☐ No
If Yes, then List Br. No(s):
☐ Type selection to accommodate anticipated future widening.
☐ Closure wall(s) required. _[s114] to determine.
☐ Bin type abutment required. _[s115] to determine.
☐ Open-end type closure wall system with ___ : ___ end slopes starting _____ m minimum from edge of pavement.
☐ See "Additional Data" for unusual or special aesthetic considerations.

T. Utility Requirements ☐ **Not Applicable**

☐ All existing utilities are shown on District Site Plan
(please include all underground utilities, wingwalls, retaining walls, etc.)
Title: _____.
Plan _[s116] based on project coordinates.
☐ A complete coordinate based map of all existing utilities will be provided by
Specify date: _____.
☐ All existing utilities in conflict with the structure except as listed below will be removed or relocated by District ***during*** construction.
☐ All existing utilities in conflict with the structure except as listed below will be removed or relocated by District ***prior to*** construction.
☐ Existing utilities to [s117]
Clearance required. Explain:
☐ Utilities already staked.
☐ No utilities to be carried on structure. ES _[s118] provide details for future utility openings.
☐ All utilities to be carried on structure are identified & listed on the attached utility information sheet, (including all bridge lighting) DS - P58.

Bridge Site Submittal.doc
REV 04/01

Page 12 of 16
CSP

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 13 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service , Office of Structures Design

Preliminary Investigations
Revised 04/01

☐ A utility information sheet, DS – P58 showing all existing utilities near the structure:
- ☐ Is attached
- ☐ Will be provided by (name/ Phone/date):
  (_____ / _____ / _____)
- ☐ Other: _____.

☐ Highway operational utilities in structure, i.e. lighting traffic signals, etc. Manhole frames and covers to be placed in bridge decks to be furnished by:
- ☐ Utility company
- ☐ State

These utilities _[z119] tied to survey construction lines and _[z120] staked by District shortly before structure foundation work (excavation, pile driving or drilling).

U. Water Line Requirements for Landscaping ☐ **None required.**

☐ Data to be furnished by District upon receipt of Bridge General Plan.

☐ Water piping system should be composed of:
- ☐ Galvanized or ductile pipe ***(Mandatory for length of pipe carried through structure).***
- ☐ Plastic pipe.

V. Width

The roadway width of the bridge [z121]Headquarters Design Reviewer.
Name: _____ Date: _____
Bridge roadway widths will be _____ m between railings or sidewalks
when viewed in the direction of [z122]See "Additional Data".

W. Hydraulic Data Section [z123] ☐ **Not Applicable; structure not over water.**

Please Complete

Waterway owned by:	[z124]
Contact Person(s)	[z125]
Phone #	
Discharge records:	[z126]
Rainfall records, for this site or adjacent sites	[z127]
High water elevations	[z128]
Low water elevations	[z129]

Please select all that applies.

☐ Waterway is lined. Liner material: _____.

☐ Confluence, reservoir, or check dams exist on this waterway.
Specify (include location): _____[z130]

☐ Flow Gage is located nearby (within 50 miles).
DEScription and Location: _____[z131]

☐ There is an apparent scour problem or history of scour at this site.
Explain: _____[z132]

☐ There is history of channel aggregation or degradation at this site.
DEScribe: _____[z133]

Attachment 4-1.1

BRIDGE SITE DATA SUBMITTAL (Sheet 14 of 14)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Division Engineering Service - Office of Structures Design

Preliminary Investigations
Revised 04/01

☐ There are active mining operations or active gravel quarry operations on this waterway.
(Briefly dESribe and give an approximate location):
_____[z134]

☐ There are levees present.
Location: _____[z135]

☐ Future levee work planned:
Explain: _____[z136]
Minimum freeboard required: _____[z137] m.

☐ There is history of debris collecting at this site.
Type and size: _____[z138]

☐ Site affected [z139]by tides (please attach a copy of current tide chart with max tidal elevations and datum).

☐ A minimum vertical clearance [z140](soffit to water surface) of _____ m is required to maintain adequate waterway.

☐ Future Flood [z141]Control Project(s) is (are) planned. ☐ Not Applicable
Agency: _____
Contact Person: _____
Phone: _____
Brief dESription: _____
OTHER

☐ A previous PI Report for this site exists (**please attach a copy to submittal**).

☐ FEMA[z142] Maps and/or FEMA studies attached.
Contact Name(s): _____
Agency: _____
Phone: _____

IV. Additional Data

•

Attachment 4-1.2

BRIDGE OR STRUCTURE FIELD SITE INVESTIGATION CHECKLIST (Sheet 1 of 5)

BRIDGE OR STRUCTURE
FIELD SITE INVESTIGATION CHECKLIST

Project Description: _____

Dist: _____ **County:** _____ **Route:** _____ **KP (PM):** _____

EA: _____ **Date:** _____

Bridge Name and Number: _____

STUDY, CHECK, GET, CIRCLE, FILL-IN OR CROSS OUT APPROPRIATE ITEMS

1. FIELD INVESTIGATION OBJECTIVE

a) To check Consultant or District data

b) To obtain additional data as needed to make a complete Site Plan.

c) To note obstructions, problems, etc. which may effect design or construction.

d) To get information to solve design and construction problems and to deal with obstructions.

e) To take photographs and notes, make sketches, etc. that will aid in the proposed design.

f) To verify that the line and grade points are available for the Engineering Geologist.

NOTE:

If bridge or structure is entirely in Fill or Cut, very few survey details are needed since the original ground will not affect the structure.

If the existing walls, roads, sidewalk, culvert, railroad etc. are to remain in the area of the structure, they should be located horizontally and vertically in detail and with the accuracy that is in proportion to their effect on structure design and construction.

A Site Plan resulting from a survey should show the site as it exists with roads, railroads, sidewalks, ditches, walls, trees, banks, etc. Site details should be sketched on the Consultant or District Project Site Plans and be eye-balled or be surveyed to 0.01-foot, depending upon their importance.

2. JOB FOLDERS

a) Contains preliminary data, letters, drawings, etc. essential for survey and report.

b) Specific Field Data required noted on the cover.

1 of 5

Attachment 4-1.2

BRIDGE OR STRUCTURE FIELD SITE INVESTIGATION CHECKLIST (Sheet 2 of 5)

BRIDGE OR STRUCTURE
FIELD SITE INVESTIGATION CHECKLIST

3. LINE: Use Tangent Survey Line Consisting of:

a) District Line 1. Found (Fd) staked in field ___ Prop ___ Survey ___
2. Set ___ line from Dist ref pts _____
Dist monument (mon) ___ Scaled ___ Survey (Sur) ___

b) Bridge Line 1. Tied to District reference points (Dist ref pts) ___
2. Assumed ___ Set of reference points ___ Mag bear ___

NOTE: Dist Drawings -Provide complete line data ___
-Line graphic ___ Line Data Missing ___

4. GRADE: Bench Mark

1. Found (Fd) 1 ___ 2 ___ Set 1 ___ 2 ___
2. Datum: NGVD ___ Dist ___ Assumed ___
3. Grade graph ___ Grade data missing ___

5. SECTION:

a) Existing Roads: Dirt ___ Gravel ___ AC ___ PCC ___
b) Bridge ___ Sidewalk ___ Channel ___ Railroad ___
c) Dist drawings provide proposed Section, Grades, Details, etc.

6. TRAFFIC:

a) None ___ Light ___ Medium ___ Heavy ___ Very Heavy ___
b) Speed: Slow ___ Average ___ Fast ___.
c) Pedestrian: None ___ Light ___ Medium ___ Heavy ___
c) Distance to school (grade, high or college). ___

2 of 5

Attachment 4-1.2

BRIDGE OR STRUCTURE FIELD SITE INVESTIGATION CHECKLIST (Sheet 3 of 5)

BRIDGE OR STRUCTURE
FIELD SITE INVESTIGATION CHECKLIST

7. DETOUR

a) None _____ Use exist _____ To be constructed _____
b) Traffic to pass through constr _____ Min openings _____
c) Stage construction required _____ Other _____

8. AESTHETICS

a) None _____ Required _____
a) Stucture: None ___ Required ___ Special Design ___
b) Railing: Standard ___ Special ___

9. FOUNDATIONS by a Certified Engineering Geologist (CEG), or a Registered Professional Civil Engineer (PE, Civil) specializing in foundations.

a) Adjacent bridge on piles _____ Spread footing _____
b) Estimate: Piles ____ Spread footings _____
c) Existing ground supporting approximate fill: 0' - 5' high ____ ,
to 30' high ____ , unlimited ____
d) Slip outs _____ . High ground water _____
e) Line and elevation points available for Engineering Geologist or Civil Engineer (with foundation specialty) _____

10. DRAINS

a) Drainage adequate at site _____
b) Special drains required _____
c) Flow line elevation and sizes of all existing drains, catch basins, drop inlets, headwalls, etc.

3 of 5

Attachment 4-1.2

BRIDGE OR STRUCTURE FIELD SITE INVESTIGATION CHECKLIST (Sheet 4 of 5)

BRIDGE OR STRUCTURE
FIELD SITE INVESTIGATION CHECKLIST

11. OBSTRUCTIONS

a) List obstructions remaining after completing of earthwork that will affect design and construction.

_____

_____

_____

b) Concrete removal required _____

12. UTILITIES

a) Roughly locate all utilities at bridge site.

b) Accurately locate both horizontally and vertically all utilities which may remain and which may affect design and construction, including all known overhead and underground utilities, valves, manholes, transformers, meters, wires, cables, guys, signals, lights, etc. Determine size and elevation of manholes and flow line elevations of sewer drains.

c) Provide: Type, Name, size, number and owner of electrical high voltage lines (above 220 k-volts), electrical low voltage lines 110 to 220 k-volts, telephone lines, cables, lights, signals, fire alarms, water lines, gas lines, communication lines etc.

d) Utilities to be carried on Structure _____" ??

13. SITE PLAN

a) Show: Lines, bench marks, contours, topography, utilities, obstructions, road surface, sidewalks, drains, curbs, buildings, business, cellars, walls, stairs, ditches, trees, fences, etc.

4 of 5

Attachment 4-1.2

BRIDGE OR STRUCTURE FIELD SITE INVESTIGATION CHECKLIST (Sheet 5 of 5)

BRIDGE OR STRUCTURE
FIELD SITE INVESTIGATION CHECKLIST

14. MISCELLANEOUS FIELD DATA

a) _____ Miles to the nearest town or city limits of _____

b) Type of adjacent area: Open county, mountains, hills, valley, swamp, tidelands, residential, business, industrial, metropolitan, potential development, etc.

c) Access _____

d) Max. length of material haul to site _____

e) Material storage at site _____

f) Photos: Get ample to cover job. As a rule of thumb: If one will cover job, that is sufficient, but if 16 are required to cover job, do not stop at 14.

g) Note any special construction sequence that may be required.

h) _____ _____

15. HYDRAULIC SURVEY

a) Use the HYDRAULIC SITE SURVEY CHECKLIST for all bridge or structure sites with adjacent streams or waterways, which may affect design or construction.

16. RAILROAD SEPARATION

a) Use the RAILROAD SEPARATION FIELD SITE INVESTIGSTION CHECKLIST for recording supplement information when railroad structure is involved

5 of 5

Attachment 4-1.3

RAILROAD SEPARATION FIELD SITE INVESTIGATION CHECKLIST (Sheet 1 of 4)

RAILROAD SEPARATION
FIELD SITE INVESTIGATION CHECK LIST

Project Description: _____

Dist: _____ **County:** _____ **Route:** _____ **PM:** _____

EA: _____ **Date:** _____

Bridge Name and Number: _____

STUDY, CHECK, GET, CIRCLE, FILL-IN OR CROSS OUT APPROPRIATE ITEMS

1. FIELD INVESTIGATION OBJECTIVE

   a) Obtain all data necessary for the designer and specification writer to prepare a complete structural design package. If the information is not obtainable in the field or in the office, make appropriate notes which indicate who should get or provide the required information.

2. SITE PLAN

   A) controls design or construction is to be located accurately both horizontally and vertically. Ground and topography to be removed or buried may be of lesser accuracy, but should show the conditions at the site as they exist.

   B) Field work: Control lines _____, two benchmarks _____, profiles, _____ contours by x-section, _____, topography, _____, utilities, _____obstructions, _____drains, _____, etc.

   c) Verify District or consultant Site Plan, if available and supplement with such details and with such accuracy to cover a minimum area of 75 feet on either side of the proposed structure.

   d) Topography: Type of road surface _____, Curbs _____, walls _____, buildings _____, cellars _____, sidewalks _____, utilities _____, obstructions _____, etc.

   E) Locate: Railroad R/W ___, switches _____, signs ___, signals _____, wires ___, utilities _____, rail details _____, etc. within 200 feet of bridge and roadway centerline.

   F) General: Name of railroad _____

   Main line _____, Branch _____, Spur _____.

   Between city or town of_____ and _____.

   Actual railroad standard _____, or M.P. tied to site _____.

   Site of railroad yard _____,or within _____ mile (s) of a switch (maximum 1 mile).

   Horizontal and vertical clearance of existing adjacent structures.

1 of 4

Attachment 4-1.3

RAILROAD SEPARATION FIELD SITE INVESTIGATION CHECKLIST (Sheet 2 of 4)

RAILROAD SEPARATION
FIELD SITE INVESTIGATION CHECK LIST

3. LINE
   a) Stationing, bearing, curves, coordinates, line intersections, and ties for the following:
      Railroad (500 feet each side of the structure center line): Existing _____ , Proposed _____
      Highway or roadway _____
      Ramps _____.
      Surveys _____ .
4. GRADE
   a) Grades, P.I. elevation, vertical curve data, location of profile and datum for the following:
      Railroad (500 feet each side of the structure center line): Existing _____ , Proposed _____
      Highway or roadway _____
      Ramps _____.
5. TYPICAL SECTION
   a) Existing ____, Proposed ___, Future widening ___ , clearance for the following:
      Railroad _____.
      Highway or roadway _____
      Ramps _____.
      Sidewalk _____
6. SUPERELEVATION AND TRANSITION
   a) Structure ____, railroad _____, highway _____, ramps _____
7. TRAFFIC
   a) Railroad: Type _____
   b) Railroad speed _____, Number of trains
   c) Highway ____, Permit ____, Pedestrians _____.
   d) Other _____.
8. DETOUR
   a) None _____.
   b) Stage Construction _____

2 of 4

Attachment 4-1.3

RAILROAD SEPARATION FIELD SITE INVESTIGATION CHECKLIST (Sheet 3 of 4)

RAILROAD SEPARATION
FIELD SITE INVESTIGATION CHECK LIST

9. SHOEFLY
   a) Location _____.
   b) Trestle _____. Construct under traffic _____.
   c) Etc. _____.

10. FOUNDATION By Certified Engineering Geologist or Registered Professional Civil Engineer specializing in foundations
   a) Estimate: Piles _____ Spread footings _____

11. CLEARING
   a) None ____, Moderate _____, Heavy _____, concrete removal _____

12. UTILITIES
   a) Roughly locate all utilities at bridge site.
   b) Accurately locate both horizontally and vertically all utilities which may remain and which may affect design and construction, including all known overhead and underground utilities, valves, manholes, transformers, meters, wires, cables, guys, signals, lights, etc. Determine size and elevation of manholes and flow line elevations of sewer drains.
   c) Provide: Type, Name, size, number and owner of electrical high voltage lines (above 220 k-volts), electrical low voltage lines 110 to 220 k-volts, telephone lines, cables, lights, signals, fire alarms, water lines, gas lines, communication lines etc.
   d) Utilities to be carried on structure _____

13. OBSTRUCTIONS Remaining after clearing and removal of utilities.
   a) List those affecting design:
      _____
      _____.
   b) List those affecting construction:
      _____
      _____.

14. AESTHETICS
   a) Structure: None _____, Required _____, Special design _____
   b) Railing: Standard _____, Special _____

3 of 4

Attachment 4-1.3

RAILROAD SEPARATION FIELD SITE INVESTIGATION CHECKLIST (Sheet 4 of 4)

RAILROAD SEPARATION
FIELD SITE INVESTIGATION CHECK LIST

15. DRAINS

a) Pump plants: None _____, Required _____, designed by _____
b) Boat Section ____, structure drains _____, surface drains _____,
c) Ground water elevation _____

16. MISCELLENEOUS DATA

a) _____ Miles to the nearest town or city limits of _____
b) Present access at site _____.
c) Nearest railroad siding. _____.
d) Max. length of material haul to site _____
e) Special sequence of operations _____.
f) Storage facilities _____
g) Electrical power _____, Telephone _____, Water _____.
h) Temperature range _____, Snow depth _____
i) Photographs. Get ample to cover job _____
j) Other problems or observations.
_____
_____
_____
_____.

17. HYDRAULIC SURVEY

k) Use the HYDRAULIC SITE SURVEY CHECK LIST for all bridge or structure sites with adjacent streams or waterways which may affect design or construction.

4 of 4

Attachment 4-1.4

BRIDGE OR STRUCTURE
HYDRAULIC SITE INVESTIGATION CHECKLIST (Sheet 1 of 3)

BRIDGE OR STRUCTURE
HYDRAULIC SITE SURVEY CHECK LIST

Project Description: _____

Dist: _____ **County:** _____ **Route:** _____ **PM:** _____

EA: _____ **Date:** _____

Bridge Name and Number: _____

STUDY, CHECK, GET, CIRCLE, FILL-IN OR CROSS OUT APPROPRIATE ITEMS

This Check List may be used in conjunction with the FIELD SITE INVESTIGATION CHECK LIST when applicable.

1. SITE PLAN SURVEY
   a) Appropriate checks made in accordance with the applicable items of the Field Site Investigation Checklist ____.
   b) Because channel alignment, scour, bank erosions etc. are important, get such additional survey information as may be required.
   c) Check for need of larger site plan coverage due to stream control other than bridge. (Skew, channel change, etc.)
   d) Survey data should include present water surface.
   e) General rough sketch of channel alignment within structure profile length may be useful.
2. BASIN
   a) Steep ____, Rolling ____, flat ____, Brush ____, Barren ____, Wooded ____, Rocky ____.
   b) Dams ____, Lakes ____, Weirs ____, flood area ___, etc.
   c) Estimate runoff: 10-20-30-40-50 etc. ___% (Best estimate) Segment area if necessary.
   d) Regulations _____.
3. FLOODS
   a) Records of flood flow from residents, highway maintenance crews, newspapers, old photographs etc.
   b) Notes of flood damage ____, Overflow area ____.
4. STAGE
   a) Locate Horizontal and vertical control and make a soft pencil imprint on any bench mark near the site. (USED, USGS, DWR, TIDAL, etc.)
   b) Elevation and location of description of high water mark, high drift strains, etc. Talk with residents, maintenance crews etc.

1 of 3

Attachment 4-1.4

BRIDGE OR STRUCTURE
HYDRAULIC SITE INVESTIGATION CHECKLIST (Sheet 2 of 3)

BRIDGE OR STRUCTURE
HYDRAULIC SITE SURVEY CHECK LIST

c) Set tidal GAUGES and record hourly during site survey of tidal waters. Get maximum and minimum elevations and times they occur.

d) Stage control due to adjacent stream, weir, drops, or other man-made or natural barriers.

e) Duration of HW _____. Elevation of LW _____

f) Period when channel is dry _____

5. VELOCITY

a) Float measured velocity _____ fps. Estimated HW velocity _____ fps.

b) Survey: Bottom of channel, water surface, high water, drift etc. and top of banks for minimum of 1000 feet up and down the stream or as necessary to determine channel flow. Estimate "n" for each change along profile, consider high stage, head loss at structures, bends, obstructions etc.

6. STREAM BED

a) Straight ___, meandering ___, fixed ___, shifting ___,

b) Channel change needed _____.

c) Estimated scour ____. Estimated erosion _____.

d) Stream bed material _____. Bank material _____

e) Dikes ___, levees ___, bars ___, obstructions _____, etc.

f) Survey: As needed to cover all possible channel changes including existing channel intersection. Estimate "n" _____.

g) Stadia channel as needed to determine skew center line of flow at low and stages, special conditions overflow data, etc.

7. DRIFT

a) Quantity ___, Size ____, Photos ____ .

b) Past problems _____

c) Span lengths of all adjacent bridges _____

d) Need for smooth bridge soffit ____ closed or open bents _____ stream lining ____ size of vertical drift way _____.

e) Detritus _____, flowing silt _____ sand ____, gravel _____, rock ___ etc.

f) Drift way satisfactory _____. Recommended size by residents ____ maintenance crews ___, others _____.

g) Recommended minimum clearance for normal span _____.

2 of 3

Attachment 4-1.4

BRIDGE OR STRUCTURE
HYDRAULIC SITE INVESTIGATION CHECKLIST (Sheet 3 of 3)

BRIDGE OR STRUCTURE
HYDRAULIC SITE SURVEY CHECK LIST

8. WATERWAY

a) Existing channel adequate?, _____ Too large? ___, Too small _____.

b) Channel improvement __, change _____, levees _____.

c) Effect of piers, obstructions, backwater, valuable property etc.

d) Survey: Normal channel x-sections about 500 feet and 1000 feet up and downstream if needed . Channel section should include overflow areas, including roads. All adjacent bridge elevations, clearance lines, decks, spans, profile, high water, scour, skew, photos, adequacy, etc. Description of bents, piers, and percent of span blocked by brush. Etc.

9. BANK PROTECTION

a) Existing _____, Adequate _____, Other locations _____

b) Protection of approach fill _____, abuts ____, wingwalls _____.

c) Protection for channel only _____, rivetments ___, spur _____dikes _____,drops ____, etc.

d) Protection provided by vegetation _____.

e) Abutments or open ends at adjacent structures ____

f) Photos of adjacent protections _____.

10. NAVIGATION DATA

a) Boat traffic: Type ____, Size ____, Speed ____

b) Opening: Existing Vertical _____, Horizontal _____.

c) Channel: Width _____, depth _____,

d) Tide relations _____

e) Levee grade _____, Flood plain grade _____

f) Harbor line _____, Wharf line _____

g) Fenders _____, dolphins _____, lights _____, signals _____.

h) Number of openings _____

i) Time of openings _____.

j) Current velocity _____, direction _____.

k) Recommended false work opening for boats _____.

3 of 3

Attachment 4-1.5

FOUNDATION PLAN PREPARATION CHECKLIST

ENGINEERING SERVICE CENTER
OFFICE OF SPECIAL FUNDED PROJECTS
FOUNDATION PLAN PREPARATION CHECK LIST

Project
Description: _____
Dist: _____ **County:** _____ **Route:** _____ **PM:** _____
EA: _____ **Date:** _____

Bridge Name and Number: _____

____ Properly formatted sheet
____ All signatures entered
____ Name of Structure
____ Bridge Number and Post Mile
____ District, County and route
____ Expenditure Authorization number
____ Site to be placed towards upper left corner of drawing
____ North Arrow placed in upper right corner
____ Control lines and name designations. Control line should be the darkest line on the drawing.
____ Stationing
____ Bearings
____ BC and EC stationing of curve with bearing of tangent or radial
____ Curve data on the inside of curve
____ Line intersection stationing
____ Topography
____ Name and direction of nearest cities
____ Names of streets and streams
____ Horizontal and vertical location of bridges to be widened
____ Utilities (Type, Size and owner)
____ Type of roadway surface
____ Types of rails (MBGR etc)
____ Pipe sizes and flow line elevations
____ Railroad crossing numbers
____ Hydraulic data near lower right corner
Magnitude, frequency, and pertinent water surface elevations for the following:
Design flood
Base flood
Overtopping flood
Flood of record if available
____ Water surface elevation and date
____ Show survey monuments if within the site
____ source and date of survey
____ Bench Marks: Two preferred with information in lower left corner
____ Datum : NGVD, District, etc.
____ Scale
____ Alignment ties
____ Drawing Number in lower right corner

1 of 1